# AMA440 Technical Details:

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| **Format:** | Top loading |
| **Capacity:** | 63 litres |
| **Temperature range:** | 100-138°C |
| **Pressure range:** | 0.2-2.4 bar |

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| **Power requirements (heaters in chamber):** | |
| **Single phase version:** | 230V, 13A, 50/60Hz, (N+E). |
| **Three phase version:** | Not applicable |

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| **Power requirements (with optional steam generator):** | |
| **Three phase only:** | Not applicable |

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| **Water requirements:** | Tap/softened water with <50ppm TDS; pH neutral. Manual fill. |
| **Drainage requirements:** | A condensate bottle (Ref: AAN308) or a similar heat resistant receptacle is required. |
| **Air requirements:** | Not applicable |
| **Vent/safety valve:** | No drain connection required. |

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| **Chamber diameter:** | 346mm | **Chamber depth:** | 668mm |
| | | **Chamber usable depth:** | 576mm |
| | | **Required bench depth:** | Not applicable |

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| **Approximate dimensions (wxdxh):** | **Machine:** | **Packed:** |
| **Standard model:** | 530x705x1070mm | 84x68x128cm |
| **Vacuum/steam generator model:** | Not applicable | Not applicable |

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| **Approximate weights:** | **Machine:** | **Packed:** |
| | 130kg | 147kg |

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| **Duran bottle capacities:** | |
| **500ml:** | 16 |
| **1000ml:** | 10 |
| **2000ml:** | 6 (8 with additional support plate) |
| **Option capacities:** | 2x Discard containers AAN342; 2x Stainless steel baskets AAN340 |

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| **Cooling locks:** | In accordance with H.S.E. PM73 preventing opening of the autoclave above 80°C. (for fluid & discard cycles) |
| **Alarms:** | For Cycle Fault - Cycle Interruption - Sterilize Failure - Water Low - Door Unlocked |

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| **Door:** | The door release is interlocked by both temperature and pressure to ensure all residual pressure has completely and effectively vented to atmosphere before the doors can be opened. The door will retain its positions in the event of failure of any service. The door is thermally insulated to prevent the surface temperature presenting a hazard to operators. The surface temperature will not exceed IEC 61010 requirements. A cycle cannot start until the door is closed and locked. Steam cannot be applied to the chamber unless the door is closed and locked. |
| **Door seal:** | Self-energising/service independent. |
| **Interlocks:** | Safety interlocks are provided, and are achieved by hardware, separate from and additional to the control system. All interlocks are configured to fail-safe and to provide a signal to the control system to indicate that normal operation has been prevented, and to terminate the current cycle. The interlock system is designed so that its function can be tested during routine maintenance. The following safety interlocks are provided: If the door is not closed, the steam supply to the chamber will be isolated. If the pressure in the chamber exceeds 0.15 bar the door will remain locked. |

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| **Controller:** | VGA (640x480) colour TFT + analogue resistive touchscreen | |
| **Controller hardware:** | *Processor:* Intel E620T 333Mhz<br>*Memory:* 256MB DDRAM, 32KB FRAM<br>*Physical Memory:* 2GB eMMC Flash Memory | |
| **Real time clock:** | Gold Foil capacitor (1000 hours) | |
| **Program storage:** | Software stored internally, Configuration data and cycles stored on a permanently attached USB stick | |
| | **Standard units** | **Variation for units with vacuum, or heated/cooling jacket (where available)** |
| **Interfaces:** | 1x Powerlink 24VDC<br>1x X2X communication interface<br>1x Ethernet 10/100Mbit/s<br>2x USB 2.0 ports<br>1x Powerlink port (currently spare)<br>1x RS232 serial port | |
| **I/O hardware:** | X209300 - Communication card | |
| | X208971 – Digital Input card, 8 Inputs | X208371 – Digital input card 8 inputs<br>2x X209371 – Digital Input card, 12 Inputs |
| | X208322 – Digital Output card, 8 Outputs | 5x X208332 – Digital Output card, 8 Outputs |
| | X202622 – Analogue Pressure Input module 2 inputs 4-20mA | X204622 – Analogue Pressure Input module 4 inputs 4-20mA |
| | X202222 – Analogue Temperature Input module 2 | X204222 – Analogue Temperature Input module 4 inputs |

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| **Applicable standards:** | PED 2014/68/EU; ISO13485: 2012; Medical Devices Directive 93/42/EEC; Medical Devices Quality Management System - BS EN ISO 13485:2012; ISO 17025:2005 (UKAS); IEC 61010; ISO9001:2008 |

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| **Performance tests:** | All electrical equipment is Safety Tested in accordance with the Low Voltage Directive. Astell shall perform the following standard Factory Acceptance Tests. The tests are included in the machine costs as per the quotation prior to despatch; all Astell autoclaves are fully tested and calibrated before despatch in line with our Quality Management System procedures ISO9001-2008 and ISO 13485:2012 |

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| **IQ/OQ Documentation Details (Optional Extra):** | IQ Documentation - Details of calibration equipment; Order Acknowledgement; PED (Pressure Equipment Directive) Compliance; Declaration of Conformity; FAT (Factory Acceptance Test); Drawing Schedule; ISO 9001:2008 Certification; Pressure vessel specification; Door safety checks.<br><br>OQ Documentation - Chamber temperature distribution (per cycle); Automatic control test (per cycle)<br><br>Please note: This is our standard IQ/OQ Documentation package. If other documents are required, please contact us with details of your specific requirements. |

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| **Autoclave safety:** | All Astell autoclaves are manufactured to the highest standards and in full compliance with the Pressure Equipment Directive – i.e. 2014/68/EU. Whilst all units have the necessary safety features to minimise user risk, and help ensure long term reliability, it is recommended that:<br><br>a) Routine safety checks are carried out in accordance with Astell manuals and in compliance with current pressure regulations and/or insurance requirements.<br>b) Autoclaves are serviced regularly by Astell or Astell trained/recommended engineers. (UK only: Please contact us for further information and costs on our range of Preventative Maintenance contracts).<br><br>It is recommended that at least 50cm is allowed on both sides and the rear of the autoclave to allow easy access for servicing and maintenance. Astell cannot be held responsible for any failed cycles that could occur as a result of non-validation of loads. |